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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,389	03/18/2005	Kazutomo Hoshino	8097-1004	7028
<div>465                      7590                      03/10/2009</div> <div>YOUNG &amp; THOMPSON 209 Madison Street Suite 500 ALEXANDRIA, VA 22314</div>				
EXAMINER				
KACKAR, RAM N				
ART UNIT		PAPER NUMBER		
1792				
MAIL DATE		DELIVERY MODE		
03/10/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/528,389

**Applicant(s)**

HOSHINO ET AL.

**Examiner**

Ram N. Kackar

**Art Unit**

1792

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7, 8, 11, 13 and 14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-8, 11 and 13-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi Noriyaki et al (JP 2002-128583).**

3. Takahashi et al teach a jig for calcining an electronic component comprising a substrate and a zirconia surface layer formed on the substrate and having an arithmetic average roughness "Ra" from 10 to 40  $\mu\text{m}$  (Page 2, Paragraph 0005).

Takahashi et al teach, an intermediate layer formed on the substrate and a zirconia surface layer formed on the intermediate layer (alumina) or directly and having an arithmetic average roughness "Ra" from 10 to 40  $\mu\text{m}$  (Page 2, Paragraph 0008, Page 2, Paragraph 0016). The intermediate layer is disclosed to include coarse metal oxide particles having an average particle size from 30 to 500  $\mu\text{m}$  and fine metal oxide particles having an average particle size from 0.1 to 10  $\mu\text{m}$  which are solid-phase calcined (Para 8).

Further, Takahashi et al teach that zirconia surface layer includes from 50 to 70 % in weight of coarse particle aggregate having from 100-200 mesh and 30 to 55 % in weight of fine particle bond phase having an average particle size from 3-5  $\mu\text{m}$  (See table 1 and its description in the machine translation).

Claims recite that roughness measured by "Sa" is 10-40  $\mu\text{m}$ .

It is noted that "Ra" is a measure of roughness when measured along a line. Parameter "Sa" is the average surface roughness, and is the three-dimensional analog of the arithmetic mean roughness "Ra". Therefore the two measures are related.

Further as seen from the specification when both Ra and Sa are measured from the same rough surface they are related to each other in similar way (See Example 9, 10, 11, 2 and comparative examples 5 and 6 as in table 2). Further as the zirconia layer comprises similar particle structure the roughness measure is also going to be similar to prior art.

Still, further Takahashi et al disclose the same problems and disclose the solution in precisely same way.

**4. Claims 11 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi Noriyaki et al (JP 2002-128583) in view of Takeuchi et al (US 20020041131).**

Takahashi Noriyaki et al do not disclose metal oxide sintering aid for zirconia layer and alumina intermediate layer.

However metal oxide sintering aid is well known for sintering ceramic materials as taught by Takeuchi et al who disclose metal oxides including magnesia, clay, silica as sintering aids for zirconia and alumina (See for example paragraph 17, 6 and 8).

Therefore using metal oxide as sintering aid would have been obvious to one of ordinary skill in the art at the time of invention.

### ***Response to Arguments***

Applicant's arguments filed 12/1/2008 have been fully considered but they are not persuasive.

See 35 U.S.C. 112, second paragraph rejection is removed. However it is noted that "Sa" and "Ra" measures are not independent of each other.

As discussed "Ra" is obtained on a line by adding all the section areas above and below mean and dividing by the line length. "Sa" on the other hand is obtained by adding volumes above and below the average surface and dividing by the area of the average surface. In both conditions one gets a number with a dimension of distance. From above one may see that "Ra" measured on a symmetrical surface would be correlated to "Sa".

Hermans et al (US 20050148257) teach the well known relation ship between "Sa" and "Ra" teach that "Sa" is the average surface roughness, and is the three-dimensional analog of the arithmetic mean roughness "Ra".

Further, Takahashi et al (US 5856016) defines Ra (Col 23 line15-20).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ram N Kackar/  
Primary Examiner, Art Unit 1792